

Case Study: Arundel museum



Re-opened in 2012 this award winning Museum's exhibits have been arranged to tell the story of the town of Arundel from the first pre-Roman settlements to the present day. It also features displays and models focusing on the river Arun and the surrounding countryside.

Contents

This pack includes;

Information for schools

Plan of day

Suggested learning outcomes

Pre/ post visit ideas

Map

Field sketch

River Corridor Survey

The River Rope Activity

The River Rope Activity – Labels

Investigating the Speed of a River

Speed of River – Recording Table

Speed of River – Illustration of Method

Risk Assessment Record

Emergency Details and Other Assessment

Information for Schools

Arundel Museum and River Arun

Class school teacher should bring class/group copies of worksheets/recording sheets/pupil maps etc downloadable form ARC website – case study section, and something to take photographs.

Resources per class visit

Map A3 laminated map of site x4

Throw line

Clip boards x16

Spare pencils

Spare paper

Explore River kits x2 – each containing:

1 compass

1 10m tape measure

1 Timer

18 dog biscuits in poly bag

Field teachers to bring:

Bucket in which to carry equipment

Poly bags for dog biscuits

Portfolio bags with sketch board and pens, a3 maps and learning outcome poster (if available)

Personal first aid kit

Plan of day

Explore the River and Museum at Arundel

Proposed plan of day for a class of about 30 KS2 children

Timings to be confirmed/ agreed with all staff and schools

10.00 School arrive, meet and greet in Jubilee Gardens

Introductions, Plan of day, Learning Outcomes, Health and Safety

Class split into 2 Groups A and B

Use of toilets in museum if needed / snack if requested

10.30 **River Investigations** Group A (Group B pm) on river bank footpath

OS map: Locate, find river, landscape and town features. Note signage. River facts – source, mouth, (tidal), length, flow etc

4 possible activities: Group could be further split if sufficient staff/volunteers so that half children do 1 and 2 (40 mins), half children do 3 and 4 (40 mins), then swap.

1. River flow and speed investigation – just before Rotary Club seat (*children to stand 2-3m back from bank edge between seat and speed signs – note for Risk Ass.*)

2. River survey recording – in pairs – near side of ditch/tributary

3. Field sketch – beyond ditch/tributary facing NW (into town)

4. Wildlife wander – walk along the riverbank beyond the ditch/tributary to listen, look for and observe wildlife and different habitats/features/changes (*adult records? Photographs – children take turns?*)

12.00 Lunch – whole class in Jubilee Gardens (or Jubilee Room if wet)

12.30 **Museum – detect and discover** Group A (Group B am)

Group split into 2 groups for 2 activities then swap

1. **Museum detectives** (40 mins) children explore museum gallery using Museum Detective booklet – (*Polly to consider preparing new booklet/sheet for visits linked to the river – booklet/sheet could be included in Case Study resources*)

2. **Workshop** (40 mins) led by museum staff/volunteer on Settlement – Why is the town here? Jubilee Room

14.0 **Review** – how has the river changed am to pm?
What did you see, what did you learn, what did you enjoy?

Shop/toilets

14.15 **School depart**

Suggested learning outcomes

Suggested Learning Outcomes based on the new NC 2014 (Geography KS2)

Children will be able to:

- Use an OS map to locate the River Arun at Arundel and identify river features
- Describe key features of the River Arun at Arundel (such as meander, flow, slip slope, confluence, sluice gate)
- Understand how primary evidence illustrates chronological understanding in the area
- Use a compass to orientate a field sketch
- Use fieldwork to observe, measure and record these features:
River speed by investigation
River landscape by sketch and survey

Pre/Post visit ideas

Arundel Museum and River Arun

Pre visit ideas for schools

Locate the site on road atlas/maps. Find the valley of the River Arun.

Look at Arundel Museum web site and share information with the class.

Research the history of the site and see how use has changed over time. Make a Time Line.

Discuss the impact people have had on the River Arun here.

Post visit ideas for schools

Evaluate the river speed experiment.

Calculate river speed averages from class results.

Calculate river speed in metres per second.

Complete/annotate/colour Field Sketches and compare to photographs (if taken).

Present Nature finds.

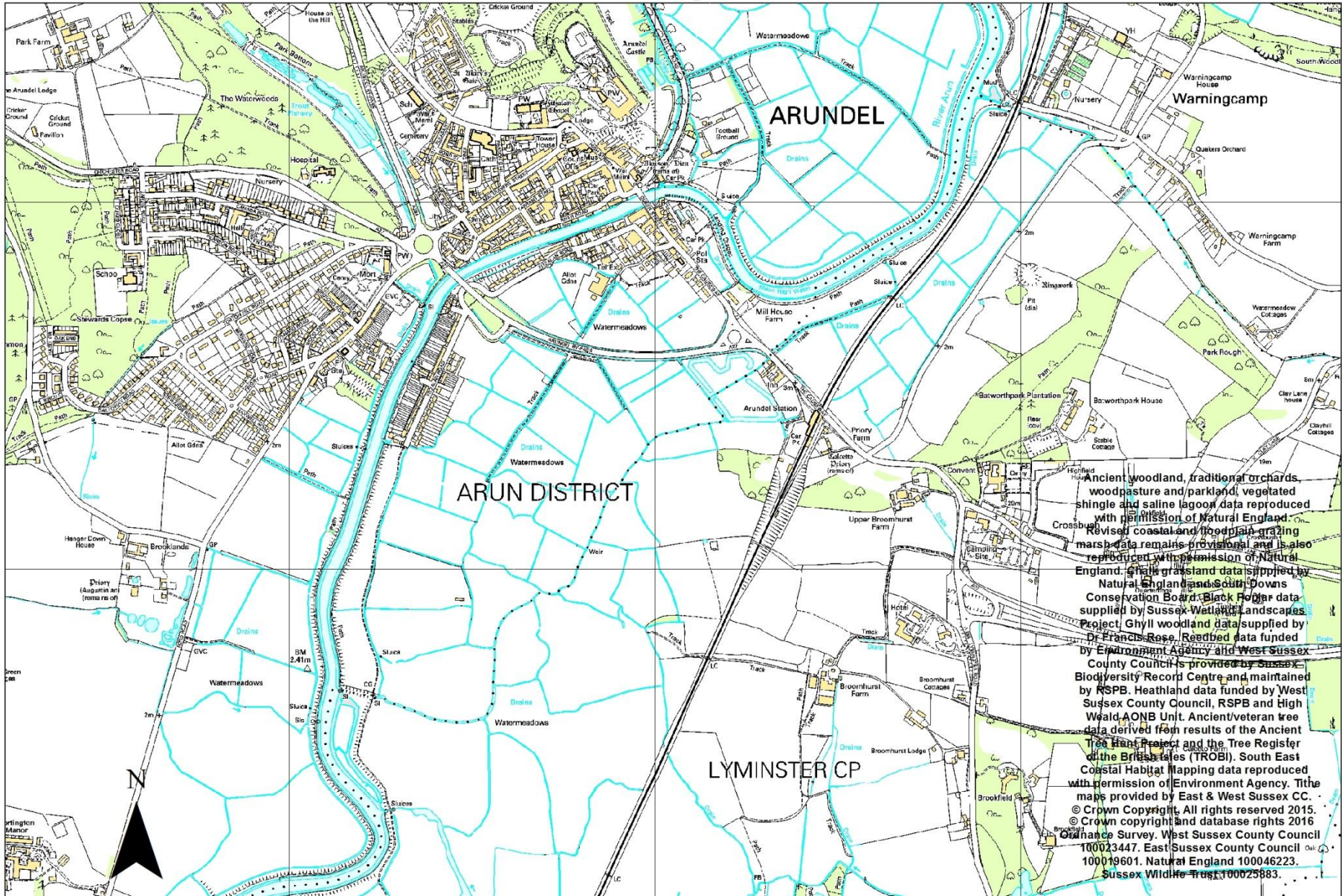
Prepare a Class Big Book about the day.

Research how people have used/use the River Arun in other ways.

Use the River Survey key to draw up a map of the site as whole class activity.

Map

Arundel and Lyminster

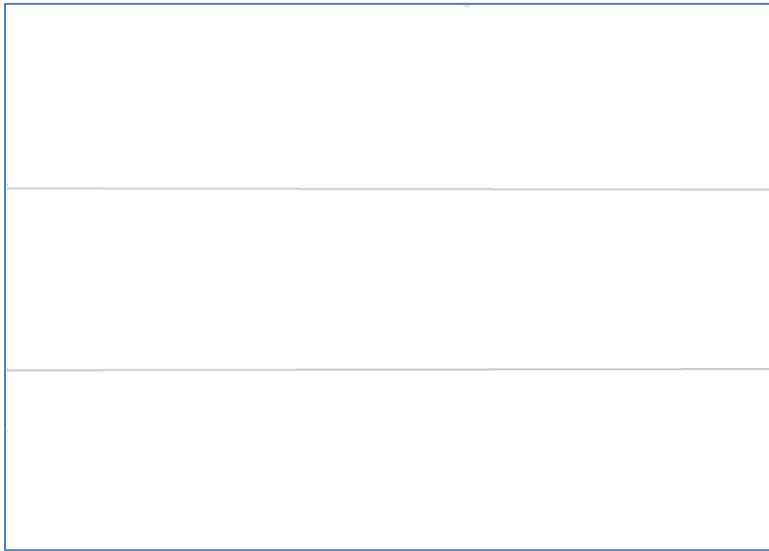


Ancient woodland, traditional orchards, woodpasture and parkland, vegetated shingle and saline lagoon data reproduced with permission of Natural England. Revised coastal and floodplain grazing marsh data remains provisional and is also reproduced with permission of Natural England. Heath grassland data supplied by Natural England and South Downs Conservation Board. Black Down data supplied by Sussex Wildlife Landscapes Project. Ghyll woodland data supplied by Dr Francis Rose. Reedbed data funded by Environment Agency and West Sussex County Council is provided by Sussex Biodiversity Record Centre and maintained by RSPB. Heathland data funded by West Sussex County Council, RSPB and High Weald AONB Unjt. Ancient/veteran tree data derived from results of the Ancient Tree Hunt Project and the Tree Register of the British Isles (TROBI). South East Coastal Habitat Mapping data reproduced with permission of Environment Agency. Tithe maps provided by East & West Sussex CC. © Crown Copyright. All rights reserved 2015. © Crown copyright and database rights 2016 Ordnance Survey. West Sussex County Council 100023447. East Sussex County Council 100019601. Natural England 100046223. Sussex Wildlife Trust 100025883.

Field Sketch

The following instructions have been written to support the learning of students visiting Arundel River Museum.

Draw 2 lines lightly, approximately dividing the page equally into 3 parts.



Looking at the landscape view, draw in the HORIZON using the top line as a guide.



Field Sketch

Draw what you see in the distance.

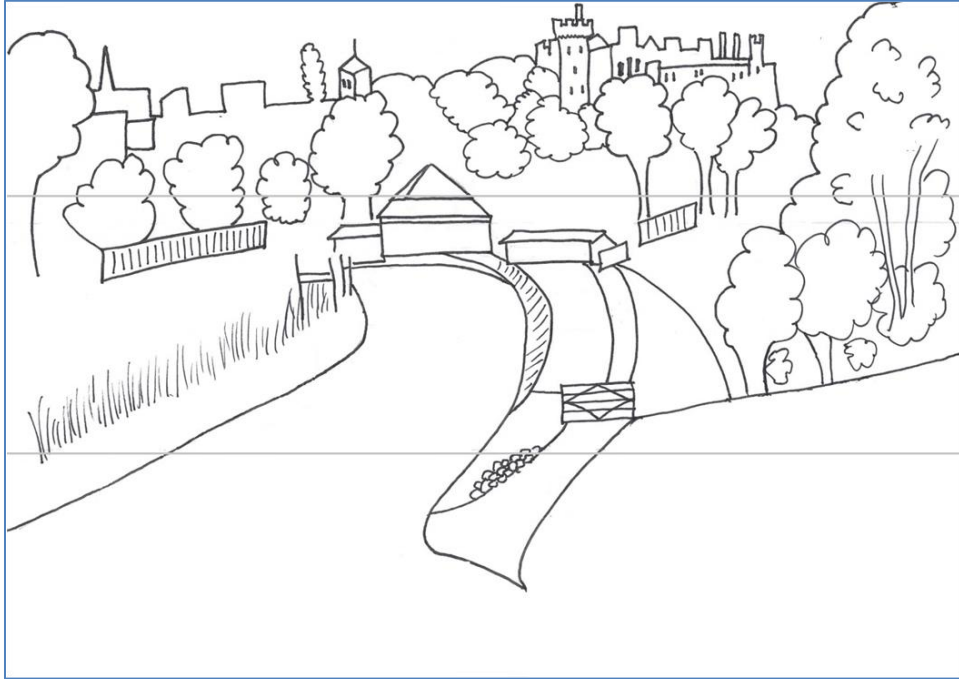


Draw in the “middle ground” downwards from the horizon line. Remember, the nearer something is the more detail you can see.



Field Sketch

Include more details to the middle ground of your sketch.

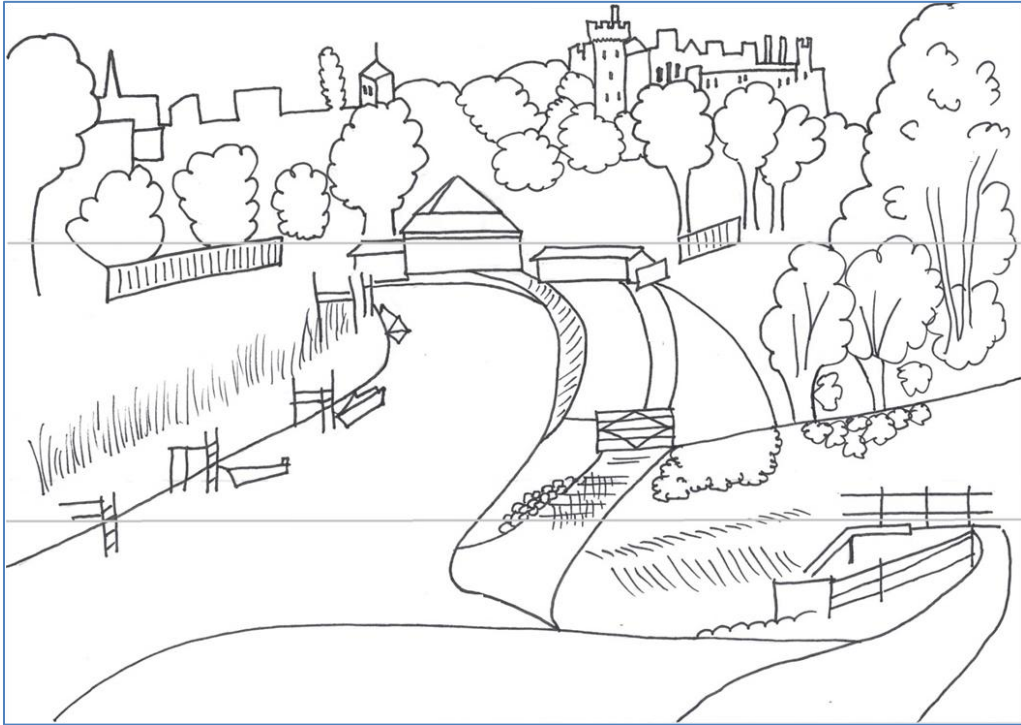


Draw the things nearest to you at the bottom of your sketch.

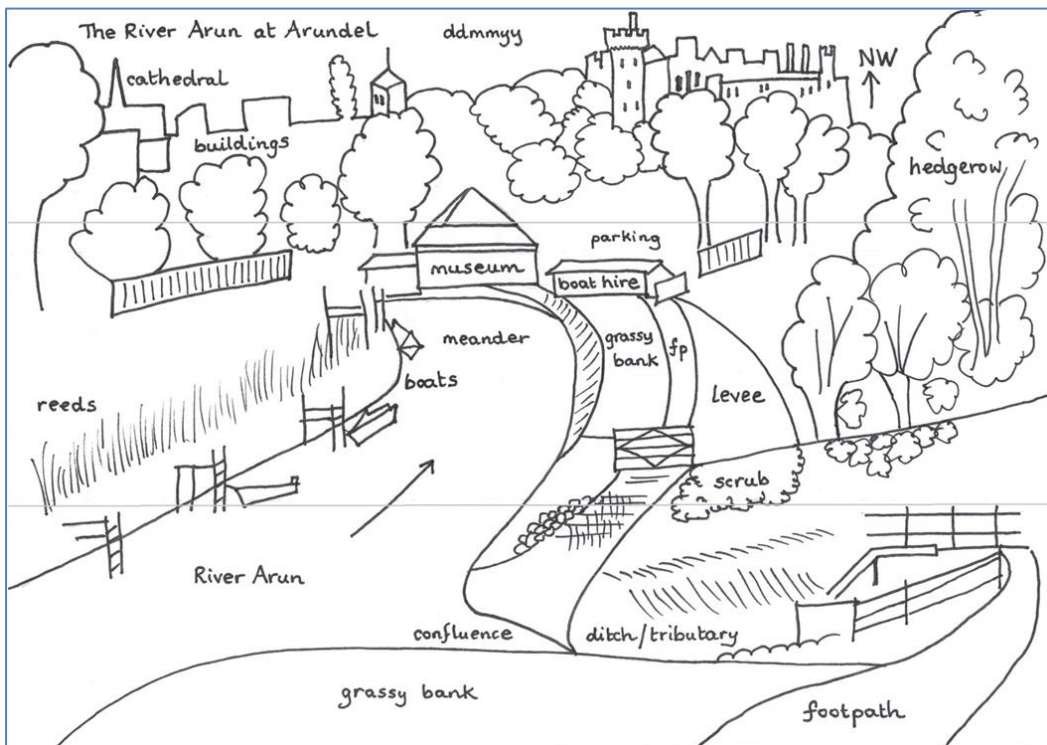


Field Sketch

Add in details such as the boats, branches on the trees etc.







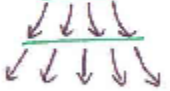
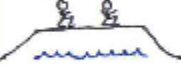








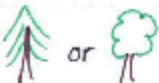









Finally, label as many features as possible, including a title, compass direction, date and time of day, weather conditions. Don't forget to add your name!



River Corridor Survey

River Corridor Survey Key

Vegetation		Deposition features		Erosion features		Non-natural Features	
Grass		Mud		Rock cliff		Fence	
Emergent plants		Sand		Slip slope		River crossing: bridge	
Submerged plants		Gravel		Steep-sided bank		ford	
Scrub		Cobbles		Plunge pool		Path/track parallel to river	
Tree						Water control features: weir	
Woodland						sluice gate	
Hedgerow						Dredged bank	
						Bank-side defences: soft eg geotextiles	
						hard eg concrete	

The River Rope Activity

Aim: To identify, label and explain the features of the river in a visual and interactive manner.

Children are encouraged, through this fun activity, to use the knowledge gained from the day in the field to recognise and label the geographic river features on a rope 'river' and to give a short explanation of the feature and for their placement of label decision. It makes a good plenary activity.

Equipment:

Each group will need:

- A length of rope 1.5 metres, preferably blue
- A set of laminated river words
- Camera

Method

Lay out the rope on ground, which ideally has a slope to it, to simulate the course of the river from source to mouth. Create a few bends in the lower end of the rope.

Each child, or pair, takes a word card and in turn reads it to the rest of the group, explains to them what the word means and where the feature can be found on the river and then places it on the rope. E.g. a wide, shallow river valley is found on the lower parts of the river's course. When everyone has taken a turn and all the labels have been placed then a photograph should be taken as a permanent reminder for later use in class. Some words could be placed correctly in more than one position.

Words to use:

- Source
- Mouth
- Narrow, steep valley
- Wide, shallow valley
- Floodplain
- Gently, sloping ground
- Meander
- Colgate*
- Arundel Museum*
- Littlehampton*
- Flow
- Arrow – picture of an arrow to go with the word "flow" to show direction of flow
- Bank
- Hills
- Flood bank

*These are settlements on the river Arun located at the source, mouth and where the field study is conducted. These should be replaced by other relevant settlements if a different river is used.

Littlehampton

Gently sloping ground

Meander

Wide, shallow valley

Mouth

The River Rope Activity - Labels

Sea

Oxbow lake

Floodplain

Flow

Bank

River Arun

Hills

Narrow, deep valley

Arundel Museum

Colgate (near Crawley

Source



Investigating the Speed of a River

NC links: Geography KS2

- Locational Knowledge - 'Key topographical features rivers'.
- Human and Physical Geography - describe and understand key aspects of physical geography of rivers.
- Geographical skills and fieldwork - use fieldwork to observe, measure, and record.

This activity can be done from a safe spot along the riverbank.

Aim:

To determine the speed of a river and its direction of flow.

Safety considerations:

- The children should be briefed on how to behave near the river and the dangers inherent in carrying out this activity.
- Pre-visit the site, and assess on the day, the safety of the bank from which the children may be working. Consider that vegetation may mask the true bank edge or may be wet and slippery etc.
- Complete a risk assessment. This may identify the need for a throw line.
- Have a 1st aid kit including emergency foil blanket.

Equipment for each group:

- Packet of 4 – 6 dog biscuits (dog biscuits are ideal because they float and are the same shape and weight. They are made of cereal and will either be eaten by fish or birds or dissolve having little environmental impact).
- Stopwatch
- Tape measure
- Clipboard
- Copy of "Speed of River Recording Table"
- Pencils
- Compass (optional, to determine direction of flow)

Method:

Explain to the children that they need to design a repeatable method that will allow them to investigate:

- What is the river flow direction?
- What is the speed of flow?

Investigating the Speed of a River

Encourage the children to offer ideas as to how this may be done. Equipment they are going to use could be shown as a prompt or shown as the children mention it in their suggestions.

Encourage the children to suggest the distance that they will measure, e.g. 2 metres, 5 metres, 10 metres. The “best” distance will depend on the particular location. Or they could decide to see how far the biscuit travels in a given time unless the experiment is being carried out using a bridge, in which case the width of the bridge will determine the distance.

Once the method has been agreed encourage the children to divide the tasks between the members of the group.

You need:

- Someone to be the “start” location marker
- At least 2 people to measure out the distance
- Someone to be the “stop” location marker
- Someone or several people to throw a dog biscuit in*
- At least one person to measure the time taken for the biscuit to travel between the “start” and “stop” locations
- Someone to write down and record the data collected

*In the interests of a fair test it should be the same person throwing, however, because it is also a good idea to have as many people involved in the activity as possible, spend some time discussing why it isn't a fair test if more than one person throws the biscuits.

Use the method on the data-recording sheet to calculate the average speed of flow.

Speed of River – Recording Table

Name/class _____

	Measurement	Observations & notes
Distance (m)		
Time 1 (s)		
Time 2 (s)		
Time 3 (s)		

Use this calculation to work out the speed



$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

This means "Distance divided by time"



Don't forget! Time must be measured in seconds.

(There are 60 seconds in a minute)

Example.

If your dog biscuit goes 10 m in 5 seconds, its speed is 2m/s (10m divided by 5 s)
(you say this "2 metres per second")

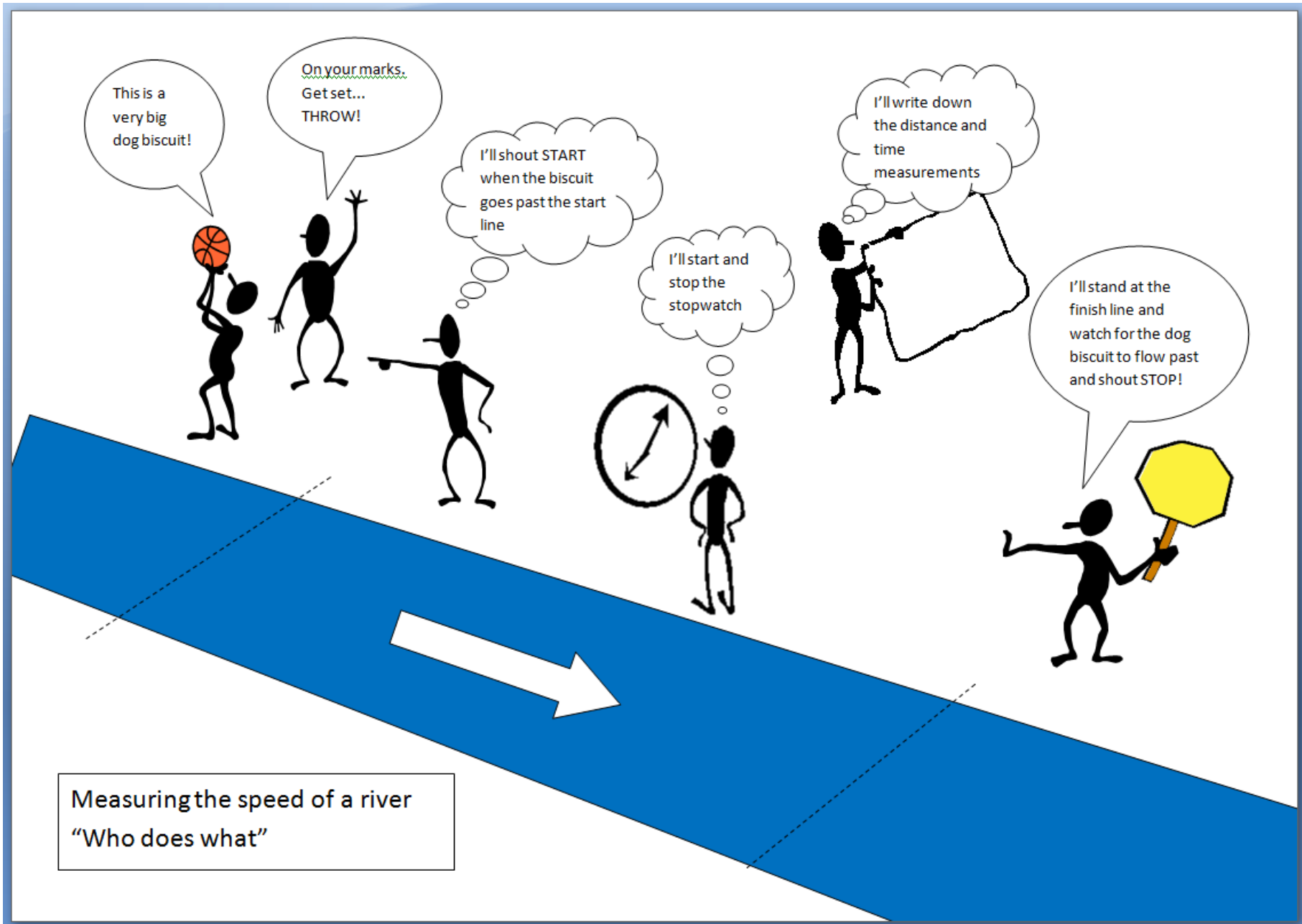
Speedy Questions

1. How many seconds are there is 1 minute 10 seconds?
2. If the dog biscuit floats 10m in 30 seconds, what is its speed?
3. If a dog biscuit floats 20 m in 1 minute, what is its speed?
4. If an elephant swims 10 m in 1 minute 40 seconds, what is its speed?
5. If a dolphin swims 20 m in 10 seconds what is its speed?



Answers: 1, 70 s 2, 0.5 m/s 3, 0.33 m/s 4, 0.1 m/s 5, 2 m/s

Speed of River – Illustration of Method



Risk Assessment Record

Activity/Workplace Assessed: School Visits to Arundel Museum & the River Arun

NB To be used in conjunction with school's own risk assessment & as such is only advisory

Assessor: Nigel Lord	Assessment Date: 05/04/2016	Manager: Polly Thorburn
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The three columns (L,S,R) are for assessing the level or degree of risk. The first (L) is for an assessment of the likelihood of the hazard taking place, the second (S) for the severity of the hazard, both based on the following:-

(L) LIKELIHOOD

1. Hazard exists very infrequently; limited numbers exposed
2. Likely to occur; hazard exists intermittently or occurs occasionally
3. Likely to occur soon; permanent hazard or occurs daily / repeatedly; many may be exposed

(S) SEVERITY OF HAZARD

1. Could cause minor injury only
2. Could cause major injury/3 day or more absence
3. Could cause fatality/severe injury

(R) RISK LEVEL is product of Likelihood and Severity (LxS).

- Very high risks score 6 or 9
- Moderate risks score 3 or 4
- Low priority risks score 1 or 2

VERY HIGH RISKS NEED IMMEDIATE ACTION

HAZARD potential for harm	Persons Affected	PRECAUTIONS/CONTROLS already in place to remove hazard, reduce risk level	RISK (with controls)			✓ Additional Controls Needed. Details Over
			L	S	R	
VEHICLES movement of in car park	All	Accompanying teachers/group leaders have been for a pre-visit and are aware of the layout of the car park; they are responsible for the supervision of the children from coach to visitor centre. NB This is a public car park is not the responsibility of Arundel Museum.	2	1	2	

Risk Assessment Record

HAZARD potential for harm	Persons Affected	PRECAUTIONS/CONTROLS already in place to remove hazard, reduce risk level	RISK (with controls)			✓ Additional Controls Needed. Details Over
			L	S	R	
<p>TOILETS: Public toilets are in the car park; museum has toilets for use of visitors.</p> <p>Slips and falls if floor is wet</p>	All	<p>The public toilets are the responsibility of Arun District Council.</p> <p>Toilets in the museum are inspected by museum staff and cleaned daily.</p> <p>A school staff member in the area of the public toilets and in the museum must supervise children.</p>	1	1	1	
<p>UNEVEN SURFACES</p> <p>Slips, trips and falls</p>	All	<p>Route will be pre-checked prior to the school/group visit. All are given a safety talk at the beginning of the visit to advise of potential hazards, wet grass, mud etc. All are instructed not to run around the site and to stick to the paths. In the pre-visit the teachers/group leaders are advised to make sure the children wear suitable sturdy footwear.</p>	1	1	1	
<p>STRANGER DANGER</p>	Children	<p>Children are supervised at all times and are instructed to stay together in their groups. They are put into small groups when they arrive and head counts are carried out throughout their visit.</p>	1	1	1	
<p>LOST CHILD</p>	Children	<p>Follow visiting school's Lost Child Procedure</p>	1	1	1	
<p>CONTACT WITH ANIMALS: WILDLIFE, LIVESTOCK, DOGS, HORSES</p>	All	<p>Children are instructed not to touch or approach animals and to be quiet when wildlife is particularly close. Accompanying teachers/group leaders to be aware of areas where dog walkers are likely to be present.</p>	1	1	1	

Risk Assessment Record

HAZARD potential for harm	Persons Affected	PRECAUTIONS/CONTROLS already in place to remove hazard, reduce risk level	RISK (with controls)			✓ Additional Controls Needed. Details Over
			L	S	R	
TOXIC PLANTS / BERRIES	Children	Children are advised not to pick or eat anything on the riverbank. All are instructed to thoroughly wash their hands/use hand sanitizers on return to the museum prior to eating lunch.	1	2	2	
CONTACT WITH DOG FAECES, LIVESTOCK OR WILD ANIMAL DROPPING	All	Hand washing facilities are available at the museum. School/group staff to provide wipes/sanitising gel as appropriate in the event of no hand washing facilities being available.	1	2	2	
TICK BITES	All	Walking in tall vegetation is avoided. School teachers/group leaders should be aware of how to identify ticks and how to remove them.	1	2	2	
ADVERSE WEATHER – Wet / Cold / Too Hot / Too windy for woods	All	During the pre-visit teachers are advised to ensure that everyone arrives wearing sensible/ practical clothes for a day outdoors. I.e.: sun hats, coats and wet weather gear. Sunscreen if required is to be brought and administered by the school/group or individuals. The activity program will be altered if the weather is deemed too adverse.	2	1	2	

Risk Assessment Record

HAZARD potential for harm	Persons Affected	PRECAUTIONS/CONTROLS already in place to remove hazard, reduce risk level	RISK (with controls)			✓ Additional Controls Needed. Details Over
			L	S	R	
<p>FALL IN RIVER: Drowning/Exposure</p>	All	<p>Children working on River Bank must stay behind the designated line. Children work in groups each with a supervising adult. Clear instructions and safety talk are given before activity, with close supervision during activity. Throw line is available, ready for use, shown, and use of is explained.</p> <p>Spare clothes are to be brought by the school. This is to be highlighted with staff at pre-visit meeting</p> <p>Foil emergency blanket in field teacher’s first aid kit.</p>	1	3	3	
<p>MUSEUM AND SHOP – Gallery and foyer entrance steps</p> <p>Slips or collisions resulting from overcrowding, children becoming separated from the group.</p>	All	<p>Museum staff are present in shop at all times.</p> <p>Museum staff monitors Indoor areas.</p> <p>Children must be supervised, by school staff, when using the shop, and at all times when using the steps and when in the museum foyer.</p> <p>Children must not climb on the railings, or run or jump on the steps or in the museum.</p> <p>Children must not climb on the exhibits or any items of furniture or fitting.</p> <p>Food or drink must not be taken into the gallery or shop. The museum is open to the public.</p>				

Risk Assessment Record

HAZARD potential for harm	Persons Affected	PRECAUTIONS/CONTROLS already in place to remove hazard, reduce risk level	RISK (with controls)			✓ Additional Controls Needed. Details Over
			L	S	R	
<p>JUBILEE ROOM</p> <p>Slips/trips/falls, children becoming separated from the group, injury resulting from use of activity equipment, artefacts and replicas, including, sharp objects.</p>	All	<p>Museum staff monitors the Jubilee Room.</p> <p>Workshop activities are supervised, and risk assessed by museum staff, and are designed to be suitable for the age of children in the group.</p> <p>Children must be supervised at all times, teachers and other adult helpers are asked to assist children in the safe use of workshop equipment.</p>	1	1	1	<p>If the Jubilee Room is used for lunch, rubbish should be taken away or placed in large bags for disposal. Teachers should be aware of any allergies among their children.</p> <p>Cleaning equipment is available on request.</p>
<p>JUBILEE GAREDENS – adjacent to the Museum, River and Priory ruins.</p> <p>Children becoming separated from the group, slips/trips and falls.</p>	All	<p>NB. The Jubilee gardens area is for use of the general public and as such is not the responsibility of Arundel Museum</p> <p>Children must be supervised at all times when in this area, and encouraged to be considerate to others using the area.</p> <p>Children should not climb on any walls or exposed archaeology – schools should be aware that members of the public use this area.</p>	1	2	2	

Emergency Details and Other Assessments

Safety Equipment needed: First aid kit, safety throw line, hand wipes

EMERGENCY INFORMATION

<p>Nearest telephone: Arundel Museum</p> <p>In museum, call box over the road</p>	<p>Nearest A&E Department: Arundel Museum</p> <p>St Richard's Hospital A &E Spitalfield Lane Chichester, West Sussex PO196SE Tel: 01243 788122</p> <p>Worthing Hospital: Lyndhurst Road, Worthing, West Sussex, BN11 2DH (25 mins)</p> <p><u>Minor Injuries:</u></p> <p>Bognor Regis War Memorial Hospital, Shripney Road, Bognor Regis, PO22 9PP Tel:01243 865418</p>	<p>Quality of mobile phone reception: Arundel Museum</p> <p>Variable inside museum</p> <p>Good outside museum</p>
<p>Access point for emergency services:</p> <p>Front of museum</p>	<p>Type of access for emergency services:</p> <p>Arundel Museum</p> <p>Normal: Yes</p> <p>4WD: Yes Air: Yes</p>	<p>First Aid cover levels:</p> <p>Field teachers: Paediatric First Aid</p> <p>Schools/groups to provide to their required levels</p> <p>Where provided?</p> <p>School/group staff to do First Aid for children</p> <p>Field teachers to do for themselves, and for children in an emergency</p>